REMARKS

In the Office Action, the Examiner noted that claims 1-20 are pending in the application. The Examiner further noted that claims 2, 8, 11, 15, 18 and 20 are objected to and that claims 1, 6, 7, 10, 13, 14, 17 and 19 stand rejected. All claims are unamended by this response.

In view of the following discussion, the Applicants submit that none of the claims now pending in the application are anticipated under the provisions of 35 U.S.C. § 102. Thus, the Applicants believe that all of these claims are now in allowable form.

Rejections

A. 35 U.S.C. § 102

The Examiner rejected claims 1, 6, 7, 10, 13, 14, 17 and 19 under 35 U.S.C. 102(e) as being anticipated by Daley et al. (U.S. Patent 6,256,309, hereinafter "Daley"). The rejection is respectfully traversed.

The Examiner alleges that regarding claim 1, Daley teaches a system/method related to field of communication system teaching a system/method comprising all of the aspects of the Applicants' invention. The Applicants respectfully disagree.

"Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim" (Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984)(citing Connell v. Sears, Roebuck & Co., 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)) (emphasis added).

The Applicants respectfully submit that Daley fails to teach, suggest or disclose each and every element of at least the Applicants' claim 1, which specifically recites:

"A method, comprising the step of:

> iteratively defining a circuit path between a source node and a destination node in a network comprising a plurality of nodes interconnected by links, where **each link has associated with it a respective bandwidth utilization level, and where links having bandwidth utilization levels exceeding a threshold level are not used to define said circuit path.**" (emphasis added)

In this Office Action, the Examiner cited Daley for teaching the limitation of "where each link has associated with it a respective bandwidth utilization level, and where links having bandwidth utilization levels exceeding a threshold level are not used to define said circuit path" as claimed in at least the Applicants' claim 1. Specifically, the Examiner cited col. 8, lines 45 -56 of Daley, which specifically recite:

> "To summarize, Dijkstra's algorithm is used to precalculate bandwidth bracketed routes from the local node to each reachable destination node. In one embodiment, the output of each Dijkstra calculation is an SPT with its root at the local node and branches spanning outward towards all other nodes. Each SPT may accommodate multiple paths to the same destination within a bandwidth bracket. The Dijkstra processes 28a-28n use the following rules for generating both delay-based and cost-based SPTs:
> If a link's AvCR is zero, do not use it;
> If a link's AvCR is below the predetermined bandwidth threshold for this SPT, do not use it..." (See Daley, col. 8, lines 45-56).

Specifically, Daley teaches a routing scheme that generates a selection of precomputed routes that provide a wide range of available bandwidths while keeping delay or cost to a minimum, for enabling high call rates at an overall lower call blocking rate. The routing scheme of Daley achieves this end by generating routes using a set of preconfigured bandwidth thresholds for pruning lower bandwidth links while least-cost optimizing on delay-based optimization functions, using for example, maximum cell transfer delay and maximum cell rate, or a cost-based function, using for example, administrative weight. With respect to defining bandwidth brackets and thresholds, Daley specifically discloses:

> "The concept of bandwidth brackets or thresholds is introduced to control the minimum bandwidth of routes precomputed by the shortest path algorithms. For example, a preconfigured bandwidth threshold of 100 Kbps directs the routing algorithm to create a set of paths to all destinations with at least 100 Kbps bandwidth. The bandwidth thresholds apply to routes generated using delay-based routing or cost-based routing. In one embodiment, the default bandwidth thresholds are spread logarithmically and generate precomputed routes where:
>
> available bandwidth of each path is non-zero;
> available bandwidth of each path is at least 100 Kbps;
> available bandwidth of each path is at least 1 Mbps; and
> available bandwidth of each path is at least 10 Mbps.
>
> Thus, the individual SPTs 30a-30n are categorized not only by optimization constraint, but also are qualified by bandwidth brackets." (See Daley, col. 8, lines 27-44).

As evident from at least the portions of Daley presented above, in the invention of Daley shortest path routes for a network are optimized according to a network constraint and organized into two or more bandwidth brackets. More specifically, in Daley, shortest path routes are chosen according to bandwidth brackets, e.g., from lowest fit (i.e., the lowest bandwidth that will accommodate the request), to highest bandwidth bracket available. (See Daley, Summary).

In contrast, in the Applicants' invention, at least with respect to claim 1, a circuit path is iteratively defined between a source node and a destination node in a network including a plurality of nodes interconnected by links, where each link has associated with it a respective bandwidth utilization level, and links having bandwidth utilization levels exceeding a threshold level are not used to define the circuit path. In support of at least claim 1, the Applicants in the specification, specifically recite:

> "As will be discussed in more detail below with respect to FIGS. 3 and 4, the invention operates to determine the shortest path between a source (start) node and a destination (end) node for provisioning a circuit in a manner that adapts to the bandwidth utilization or "loading" placed upon each link connecting the source node, destination node, and intervening nodes. In this manner, the invention operates to insure that

each link within the provisioned circuit is operating at a loading level below a threshold value." (See Specification, page 4, lines 26-35).

"In the network 300 of FIG. 3, a circuit is to be provisioned between a start node (node A) and an end node (node G). The shortest path between nodes A and G is the path through the following nodes A-H-I-J-G. However, according to the invention, if the bandwidth utilization level or 'load' on any of the links connecting nodes A through G has reached or exceeded a preset threshold level, such as 50% bandwidth utilization level, then another shortest or "next shortest" path is found where the load is found, such that the threshold level is honored." (See Specification, page 8, lines 18-27).

And

"It is noted that the threshold level is a measure for a digital link, not a measure of the aggregate of links between two nodes. That is, the threshold level is applied to the specific digital link between two nodes contemplated to be used within the provisioned circuit. Where multiple links between two nodes exist, alternate links may be used or the multiple links may have associated with them different threshold levels, depending on the technology used to provide each link. In this manner, the "shortest path" algorithm and threshold level comparison are used in an iterative fashion whereby each link determined to be appropriate according to the shortest path algorithm is compared to a corresponding threshold level to determine if the link is, in fact, appropriate with respect to the bandwidth utilization level of the link. If the link is over utilized or otherwise inappropriate, then a different link may be selected for use in the shortest path algorithm. In this manner, those links following an inappropriate or over utilized link do not have to be processed by the shortest path algorithm." (See Specification, page 9, lines 9-27).

It is clear from at least the portions of the Applicants' specification recited above, that the Applicants' invention is directed, at least in part, to determining a circuit path between a source node and a destination node by iteratively comparing a determined shortest route with a predetermined bandwidth utilization level for links to be used to complete the circuit path. In the invention of the Applicants, the bandwidth utilization of a link is defined as the loading of the link. Advantageously, the invention of the Applicants operates to insure that

each link within the provisioned circuit is operating at a loading level below a threshold value. This is absolutely not the case in the invention of Daley.

Again, and as clearly depicted above, in contrast to the Applicants' invention, Daley specifically claims a method of organizing a plurality of shortest path routes for a network computed according to a network constraint into two or more bandwidth brackets, each of the bandwidth brackets including a lower bandwidth threshold and an upper bandwidth threshold. (See Daley, claim 1). In support of the claims, Daley specifically recites:

> "At steps 54-56, the path selection algorithm 38 accesses the SPTs 30a-30n sequentially until an acceptable route is found or all SPTs have been accessed. In one embodiment, four delay- or cost-based SPTs are implemented:
>
> SPT with non-zero bandwidth;
> SPT with at least threshold_1 (100K) bandwidth;
> SPT with at least threshold_2 (1M) bandwidth; and
> SPT with at least threshold_3 (10M) bandwidth.
>
> There will be cases where the SPTs 30a-30n will not be able to supply a route with enough bandwidth to satisfy a call request, even when sufficient bandwidth is available in the network. This can occur if a call's request for bandwidth exceeds the bandwidth threshold for the SPT and no higher bandwidth SPT is available. In such cases, i.e., when a route cannot be found in the SPTs 30a-30n and the requested bandwidth exceeds the highest bandwidth brackets of the SPTs, an on-demand route computation is performed. The configuration of the bandwidth thresholds controls the frequency of these on-demand computations." (See Daley, col. 9, lines 26-46).

It is further evident from at least the portions of Daley recited above, that again, the invention of Daley is directed, at least in part, to a routing scheme that searches for shortest path routes, e.g., upon receipt of a call request, according to the bandwidth brackets, e.g., from lowest fit to highest bandwidth bracket available that will accommodate the request. Specifically, in Daley, bandwidth brackets are created for determining whether a determined path has the

bandwidth capacity to fulfill a route request. As such, a route request requiring a specific bandwidth capacity will be serviced by the bandwidth brackets having enough bandwidth to fulfill the route request.

However, there is absolutely no teaching, suggestion or disclosure in Daley for "iteratively defining a circuit path between a source node and a destination node in a network comprising a plurality of nodes interconnected by links, **where each link has associated with it a respective bandwidth utilization level, and where links having bandwidth utilization levels exceeding a threshold level are not used to define said circuit path**" as claimed in at least the Applicants' claim 1. More specifically, Daley does not teach comparing bandwidth utilization of proposed links against predetermined bandwidth utilization threshold levels to determine if a proposed link will be used to fulfill a route request. The Applicants' invention advantageously balances a total load among the links of a communication system. Daley is incapable of performing at least this aspect of the Applicants' invention because Daley does not teach determining the bandwidth utilization level of links forming a circuit path between a source node and a destination node. The Applicants respectfully point out to the Examiner that searching for a shortest path route using available links having a minimum amount of available bandwidth, as in the invention of Daley, clearly does not anticipate the Applicants' invention for balancing a total load among links of a circuit path by "iteratively defining a circuit path between a source node and a destination node in a network comprising a plurality of nodes interconnected by links, **where each link has associated with it a respective bandwidth utilization level, and where links having bandwidth utilization levels exceeding a threshold level are not used to define said circuit path**" as claimed in at least the Applicants' claim 1. The Applicants respectfully submit that the teachings and claims of Daley fall far short of the Applicants' invention and claims.

For at least the reasons stated above, the Applicants respectfully submit that Daley fails to teach, suggest or describe provisioning a circuit in a manner

that avoids over utilizing or overloading communications links between network elements or nodes within a telecommunications or other network as taught and claimed by the Applicants in at least the Applicants' claim 1.

Therefore, the Applicants submit that claim 1 is not anticipated by the teachings of Daley and, as such, fully satisfies the requirements of 35 U.S.C. §102 and is patentable thereunder.

Likewise, independent claims 7, 10, 14, 17 and 19 recite similar relevant features as recited in claim 1. As such, and for at least the reasons stated herein, the Applicants submit that independent claims 7, 10, 14, 17 and 19 are also not anticipated by the teachings of Daley and, as such, also fully satisfy the requirements of 35 U.S.C. §102 and are patentable thereunder.

Furthermore, dependent claims 2-6, 8-9, 11-13, 15-16, 18 and 20 depend either directly or indirectly from independent claims 1, 7, 10, 14, 17 and 19 and recite additional features therefor. As such and for at least the reasons set forth herein, the Applicants submit that dependent claims 2-6, 8-9, 11-13, 15-16, 18 and 20 are also not anticipated by the teachings of Daley. Therefore the Applicants submit that dependent claims 2-6, 8-9, 11-13, 15-16, 18 and 20 also fully satisfy the requirements of 35 U.S.C. §102 and are patentable thereunder.

The Applicants reserve the right to establish the patentability of each of the claims individually in subsequent prosecution.

Applicants' Note

The Applicants would like to thank the Examiner for pointing out allowable subject matter, however, the Applicants respectfully submit that, as they now stand, all of the Applicants' claims are allowable over the prior art cited by the Examiner. The Applicants do agree with the Examiner, however, that claims 2, 8, 11, 15, 18 and 20 would be allowable if rewritten in independent form including

all of the limitations of the base claim and any intervening claims.

Conclusion.

Thus the Applicants submit that none of the claims, presently in the application are anticipated under the provisions of 35 U.S.C. § 102. Consequently, the Applicants believe that all of these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending n the application, it is requested that the Examiner telephone Jorge Tony Villabon, Esq. at (732) 530-9404 x1131 or Eamon J. Wall, Esq. at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

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